**John L. Coffin**

Ph. D. Candidate, Division of Biology, Kansas State University

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**Education**

In progress **Doctor of Philosophy**—Biology (Advisor: Dr. Michael Tobler), expected graduation in 2022.

Kansas State University, Manhattan, KS 66506, USA.

3.84 GPA.

2017 **Bachelor of Science**—Ecology

**Bachelor of Science**—Interdisciplinary Studies: Marine Science

University of Georgia, Athens, GA 30606, USA.

3.62 GPA, *cum laude*, with honors.

Thesis: *Predicting oyster larval settlement and growth using remotely sensed data.*

**Research and Professional Experiences**

In progress **Graduate Research Assistant**—Kansas State University, PI: Dr. Michael Tobler.

Deciphering mechanisms of ecological speciation in extreme environments by identifying and quantifying reproductive isolating barriers in populations of Atlantic mollies (*Poecilia mexicana*) inhabiting streams experiencing divergent selection due to toxic hydrogen sulfide.

2017 **Rotational Ph. D. Student**—Kansas State University, PI: Dr. Michael Tobler.

Compared oxidative stress in freshwater, live-bearing fish in response to heavy metal pollution.

2017 **Rotational Ph. D. Student**—Kansas State University, PI:Dr. Mark Ungerer.

Identified orthologs of transposable element suppression pathways to understand genome size evolution in sunflowers (*Helianthus annuus*).

2016-2017 **Undergraduate Assistant**—University of Georgia, PIs: Drs. Savithri Nambeesan and Anish Malladi.

Aided in greenhouse breeding experiments to improve shelf-life, nutrient concentration, and fruit size in apples, bell peppers, and tomatoes.

2013-2017 **Undergraduate Researcher**—University of Georgia, PI: Dr. Jeb Byers.

Studied spatial interactions between two ecosystem engineers, the Eastern Oyster (*Crassostrea virginica*) and marsh grass (*Spartina alterniflora*). Developed sensors for field deployment to predict oyster larval settlement and survivorship.

2015-2016 **Poultry Animal Caretaker**—Poultry Diagnostic and Research Center.

Managed health and care of poultry animals involved in population health studies.

2013 **Research Assistant**—University of Georgia, PI: Dr. Xiaoyu Zhang.

Conducted PCR-based experiments to understand the effects of histone methylation on flowering gene expression in *Arabidopsis thaliana*.

2011 **Research Associate**—Georgia Tech Research Institute, Signature Technology Laboratory.

Built and programmed systems for mechanized assembly of aircraft antennae.

**Research Grants, Scholarships, and Fellowships**

2019 **Kansas State University Graduate School Travel Award ($500)**

2019 **Biology Graduate Student Association Travel Award ($500)**

2018 **Kansas State University Arts and Sciences Travel Award ($800)**

2017 **GAANN Fellowship ($93,600)**

Kansas State University’s Graduate Assistance in Areas of National Need (GAANN) Ecology, Evolution, and Genomics in Changing Environments fellowship program. $29,200 stipend and $2,000 research expenditure per year for three years, from 2017-2020.

2017 **Graduate Research Assistantship ($54,600)**

Served as a teaching assistant for introductory biology labs. Developed active learning techniques to enhance student participation and retention of information. $27,300 stipend per year from 2020 until graduation from the PhD program.

2017 **Sunset Zoo Science Communication Fellowship**

Learned skills for technical writing and communication of science to the public in oral, written, and video formats. Partnered with Sunset Zoo to develop a hands-on activity to teach children about evolution.

2016 **CURO Summer Fellowship ($3,000)**

Completed independent research through the University of Georgia Center for Undergraduate Research Opportunities at field locations on a barrier island in Georgia.

2015 **CURO Research Assistantship ($1,000)**

Conducted independent research under Dr. Jeb Byers.

**Peer-Reviewed Publications**

Keisling, C., R. D. Harris, J. Blaze, **J. Coffin**, J. E. Byers (2020): Low concentrations and low spatial variability of marine microplastics in oysters (*Crassostrea virginica*) in a rural Georgia estuary. *Marine Pollution Bulletin* 150 (110672).

**Invited Lectures**

2019 **How to get involved in research as an undergraduate.** A presentation for the Kansas State University Wildlife Society.

2018 **Tar Creek—MHS 9th Grade Unit 1 Ecology.** A presentation recorded on YouTube (<https://www.youtube.com/watch?v=TlKoKDTilfQ>) for a 9th grade biology class at Manhattan High School about ecological aspects of my Ph. D. research.

2016 **How to get involved in CURO research at UGA—personal experience.** A lecture for an Introduction to Honors course for all incoming students to UGA’s honors program.

2016 **Predicting oyster larval settlement and survivorship using remotely sensed data.** A lecture for the University of the South’s Island Ecology Program seminar series on marine biology.

**Oral Presentations**

2021 *Using what your mama gave you: adaptation to extreme environments through maternal effects*. **Coffin, J. L.**, Onnen, J., Tobler, M.

Central Ecology and Evolution Conference.

2021 *Adaptation to extreme environments through maternal effects.* **Coffin, J. L.**, Onnen, J., Tobler, M.

Kansas State University Division of Biology: Graduate Student Research Forum.

2021 *Maternal effects through ontogeny in fishes inhabiting extreme environments.* **Coffin, J. L.**

Society for Integrative and Comparative Biology, 2021 Annual Meeting.

2020 *Ecological speciation in extreme environments*. **Coffin, J. L.**

Kansas State University Division of Biology: Graduate Students on Parade.

2020 *Surviving in extreme environments: responses to heavy metal pollution in mosquitofish*. **Coffin, J. L.**, Kelley, J. L., Tobler, M.

Society for Integrative and Comparative Biology, 2020 Annual Meeting.

2019 *Transcriptomic responses to heavy metal pollution in the Western mosquitofish*. **Coffin, J. L.**, Kelley, J. L., Tobler, M.

Ecological Genomics Forum, Kansas State University.

2019 *Responses of fishes to heavy metal contaminated extreme environments*. **Coffin, J. L.**, Kelley, J. L., Jeyasingh, P. D., Tobler, M.

Kansas State University Division of Biology: Graduate Student Research Forum.

2019 *Heavy metal: responses of fishes to life in extreme environments.* **Coffin, J. L.**

Kansas State University: Three Minute Thesis Competition.

2019 *Survival in extreme environments: responses to heavy metal pollution in the Western mosquitofish*. **Coffin, J. L.**

Kansas State University Division of Biology: Graduate Students on Parade.

2019 *Hemorrhaging heartland: the backyard environmental disaster you’ve never heard about*. **Coffin, J. L.**

Science Communication Conference, Kansas State University.

2018 *Transcriptomic responses to heavy metal pollution in the Western mosquitofish*. **Coffin, J. L.**, Kelley, J. L., Tobler, M.

Kansas State University Division of Biology: Graduate Student Research Forum.

2018 *The effects of heavy metal pollution on fish in the Tar Creek watershed*. **Coffin, J. L.**

Kansas State University Division of Biology Graduate Students on Parade.

2017 *Predicting oyster larval settlement and growth using remotely sensed data.* **Coffin, J. L.**, Gavilanes, E., Harris, R., Byers, J.

University of Georgia Center for Undergraduate Research Opportunities Symposium.

**Poster Presentations**

2019 *Responses of fishes to heavy metal contaminated extreme environments*. **Coffin, J. L.**, Kelley, J. L., Jeyasingh, P., Tobler, M.

Symposium on Evolutionary Genomics of Adaptation, University of Nebraska—Lincoln.

2019 *Responses of fishes to heavy metal contaminated extreme environments*. **Coffin, J. L.**, Kelley, J. L., Jeyasingh, P., Tobler, M.

Society for Integrative and Comparative Biology, 2019 annual meeting.

2016 *Can oyster larval settlement and survivorship be predicted using cheaply obtained, remotely sensed data?* **Coffin, J. L.**, Gavilanes, E., Harris, R. D., Byers, J.

University of Georgia Odum School of Ecology Graduate Student Symposium.

**Teaching Experience**

2017-date **Teaching Assistant, Division of Biology, Kansas State University**

* *BIOL 201, Organismic Biology (6 semesters)*

Generated course content and presentations for class. Incorporated active-learning activities into lesson plans. Created and graded exam content. Produced high-quality lecture video content for online learning.

* *BIOL 520, Evolution (2 semesters)*

Taught the basics of scientific programming using the R programming language. Generated R Markdown documents to teach fundamental concepts in evolution. Aided students in troubleshooting code for assignments.

**Mentoring**

**Kansas State University**

2020-date Quinlyn LaFon

2019-date Hannah Hoffman-Colburn, NSF REU scholar

2018-date Justine Onnen, NSF REU scholar

2017-2018 Michael Laughlin

**Service and Leadership**

***Peer Reviewer***

Journals: Royal Society Open Science

***Departmental Service and Leadership***

2018-2019 Biology Graduate Student Association, Division of Biology, Kansas State University

**Treasurer**

Formed an annual budget for FY 2019. Kept financial records and coordinated distribution of over $10,000 in grants to graduate students in the organization.

***Organizational Service and Leadership***

2016-2017 Chi Psi Fraternity, University of Georgia

**Regional Representative**

Represented all chapters in the Southeast region of the United States within the national fraternity organization. Developed actionable plans to improve each chapter in my region and advocated for resources from the national organization to be provided to the chapters I represented.

2015-2016 Chi Psi Fraternity, University of Georgia

**President**

Represented the fraternity on the University of Georgia campus and surrounding community. Coordinated and advised on all aspects of the fraternity, including finances, new member recruitment, professional development, and service and outreach. Led service initiatives that raised over $5,000 for charities during my term.

**Public Engagement and Outreach**

2021 **Behavior, Ecology, and Evolution of Poeciliid Fishes Virtual Forum**—Kansas State University, Manhattan, KS, USA.

Served on the selection committee, which designed the program for the forum and organized all speakers from around the world for a public virtual conference on the biology of poeciliid fishes.

2018 **Local High School Collaboration**—Manhattan High School, Manhattan, KS, USA.

Collaborated with Mr. Brad Fabrizius of Manhattan High School to build lesson plans to fulfill Kansas curricular standards related to ecology and evolutionary biology. Designed activities for students to complete in a laboratory setting.

2017-2018 **Science Saturdays**—Sunset Zoo, Manhattan, KS, USA.

Created active learning activities to teach children basic biological concepts as part of the Sunset Zoo Science Communication Fellowship.

**Professional Affiliations**

Society for Integrative and Comparative Biology

oSTEM

Kansas State Biology Graduate Student Association

**Computational and Laboratory Skills**

***Programming Languages***

R

Python

Unix

Awk

Bash

Sed

***Software Packages***

RStudio

R Markdown

Jupyter Notebooks

GitHub

ArcGIS

ImageJ

idTracker

Adobe Illustrator

Adobe Photoshop

***Laboratory Techniques***

PCR

Media preparation

Agarose electrophoresis

Animal sedation and anesthesia

Animal dissections

RNA extraction and purification

RNA-seq library preparation